

CLAIMS

1. A method for testing an enzyme of interest or screening a library of polypeptides for an enzyme of interest comprising measuring the colour of a second dye, wherein the enzyme of interest or library of polypeptides has been contacted with a solid media in the presence of a first substrate, one or more other enzymes and a first dye, and wherein a product of the chemical reaction between an enzyme of interest and the first substrate is a substrate for one of the other enzymes, and wherein the first dye is a substrate for one of the other enzymes, and wherein the product of the chemical reaction between the first dye and one of the other enzyme is a second dye, and wherein the colour of the first dye is different from the colour of the second dye.

2. A method according to claim 1, wherein a polymer capable of binding the second dye is also present.

3. A method for testing a host cell or screening a library of host cells for expression of an enzyme of interest comprising measuring the colour of a second dye, wherein the host cell or library of host cells has been cultivated on or in a solid media in the presence of a first substrate, one or more other enzymes and a first dye, and wherein a product of the chemical reaction between the enzyme of interest and the first substrate is a substrate for one of the other enzymes, and wherein the first dye is a substrate for one of the other enzymes, and wherein the product of the chemical reaction between the first dye and one of the other enzyme is a second dye, and wherein the colour of the first dye is different from the colour of the second dye.

4. A method according to claim 3, wherein the method comprises the following steps:

- c) cultivating a host cell expressing the enzyme of interest or a library of host cells expressing a library of polypeptides on or in a solid media in the presence of a first substrate, one or more other enzymes and a first dye, wherein a product of the chemical reaction between the enzyme of interest and the first substrate is a substrate for one of the other enzymes, and wherein the first dye is a substrate for one of the other enzymes, and wherein the product of the chemical reaction between the first dye and one of the other enzymes is a second dye, and wherein the colour of the first dye is different from the colour of the second dye.

d) measuring the colour of the second dye.

5. A method according to any of claims 3-4, wherein a polymer capable of binding the second dye is also present.

6. A method according to any of claims 2 or 5, wherein the polymer is carboxy methyl
5 cellulose (CMC), chitin, chitosan, pectate, pectin or starch.

7. A method according to any of claims 1-6, wherein the other enzymes comprise a per-
oxidase (E.C. 1.11.1.7).

8. A method according to claim 7, wherein the other enzymes further comprise an en-
zyme capable of producing hydrogen peroxide upon reaction with its substrate, e.g. a glucose
10 oxidase (E.C. 1.1.3.4), a cellobiose oxidase (E.C. 1.1.3.25), an alcohol oxidase (E.C. 1.1.3.13),
a galactose oxidase (E.C. 1.1.3.9) or a L-amino acid oxidase (E.C.1.4.3.2).

9. A method according to any of claims 1-8, wherein the enzyme of interest is selected
from the group consisting of: a glucoamylase (E.C. 3.2.1.3), a beta-glucosidase (E.C.
3.2.1.21), a pectinesterase (E.C. 3.1.1.11), a alpha-galactosidase (E.C. 3.2.1.22), a cellulose
15 1,4-beta-cellobiosidase (E.C. 3.2.1.91), a lactase (E.C.3.2.1.108), a beta-galactofuranosidase
and a carboxypeptidase A (E.C. 3.4.17.1).

10. A method according to claim 8, wherein the other enzymes further comprise a beta-
glucosidase (E.C. 3.2.1.21).

11. A method according to any of claims 1-8 or claim 10, wherein the enzyme of interest
20 is a cellulase (E.C.3.2.1.4) or a cellulose 1,4-beta-cellobiosidase (E.C. 3.2.1.91).

12. A method according to any of claims 1-7, wherein the enzyme of interest is an en-
zyme for which a product of the chemical reaction between the enzyme of interest and a first
substrate is hydrogen peroxide.

13. A method according to claim 12, wherein the enzyme of interest is selected from the
25 group consisting of: a glucose oxidase (E.C. 1.1.3.4), a cellobiose oxidase (E.C. 1.1.3.25), an
alcohol oxidase (E.C. 1.1.3.13), a galactose oxidase (E.C. 1.1.3.9) and a L-amino acid oxidase
(E.C.1.4.3.2).

14. A method according to any of claims 1-13, wherein the first dye is Brilliant Blue.

15. A method for testing an enzyme of interest or screening a library of polypeptides for an enzyme of interest comprising measuring the colour of a second dye, wherein the enzyme of interest or library of polypeptides has been contacted with a solid media in the presence of a first dye and a polymer, and wherein the product of the chemical reaction between the first dye and the enzyme of interest is a second dye, and wherein the polymer is capable of binding to the second dye, and wherein the colour of the first dye is different from the colour of the second dye.

16. A method for testing a host cell or a library of host cells for expression of an enzyme of interest comprising measuring the colour of a second dye, wherein the host cell or library of host cells has been cultivated on or in a solid media in the presence of a first dye and a polymer, wherein the product of the chemical reaction between the first dye and the enzyme of interest is a second dye, and wherein the polymer is capable of binding to the second dye, and wherein the colour of the first dye is different from the colour of the second dye.

17. A method according to claim 16, wherein the method comprises the following steps:

a) cultivating a host cell expressing the enzyme or a library of host cells expressing a library of polypeptides on or in a solid media in the presence of a first dye and a polymer, wherein the product of the chemical reaction between the first dye and the enzyme of interest is a second dye, and wherein the polymer is capable of binding to the second dye, and wherein the colour of the first dye is different from the colour of the second dye.

b) measuring the colour of the second dye.

18. A method according to any of claims 16-17, wherein the polymer is carboxy methyl cellulose (CMC), chitin, chitosan, pectate, pectin or starch.

19. A method according to any of claims 16-18, wherein the first dye is Brilliant Blue.

20. A method according to any of claims 16-19, wherein the enzyme of interest is a peroxidase (E.C. 1.11.1.7), e.g. Horseradish peroxidase.

21. A method for testing or screening for an activity of a peroxidase (E.C. 1.11.1.7) com-

prising testing of screening for a change in the colour of Brilliant Blue by the presence of a host cell expressing the peroxidase, wherein the host cell has been cultivated on or in a solid media in the presence of Brilliant Blue and hydrogen peroxide.

22. A method for testing or screening for an activity of a peroxidase (E.C. 1.11.1.7) comprising testing of screening for a change in the colour of Brilliant Blue by the presence of the peroxidase, wherein the peroxidase has been contacted with a solid media in the presence of Brilliant Blue and hydrogen peroxide.
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